Real World SRP Limitations

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Overview

- SRP Reservations are severely limited when noncontiguous DA and StreamID’s are used.
- Due to defaults specified in MRP and the size of Talker Advertise’s only a limited number of reservations can be maintained.
- Talker Advertise’s are likely to grow in size as features are added, making this problem worse.
- Unique items in the Talker Attributes used for Multipath will make packing attributes more difficult, again making this problem worse.
LeaveTime Operation

- LeaveTime is defined as 600-1000 milliseconds
- JoinTime is defined as 200 milliseconds
- No way to discover the LeaveTime of an unmanaged bridge
- See IEEE Std. 802.1Q-2011 Table 10-7
Point to Point operation allows 3 packets every 1.5 JoinTime

JoinTime is defined as 200 milliseconds

No way to discover if the entire network is point to point

See IEEE Std. 802.1Q-2011 Table 10-7
Further Complications

- Depending on implementation it is possible for additional software and queuing delays to further reduce the effective LeaveTime.
Talker Advertise Limits

- **Talker Advertise with no packing**
  - Limit of 46 Talker Advertises per Packet
  - Limit of 3 or 6 Packets before the 600ms LeaveTime
  - Limit of 138 or 276 Talker Advertises with no packing

- **Talker Advertises propagate through the entire network**
  - No way to discover LeaveTime
  - 600ms has to be assumed
  - LeaveTime violations causes stream to be dropped
  - No way to discover if entire network is point to point
  - Network limit of 138 or 276 reservations
Possible Solutions

- **Increase LeaveTime**
  - It may be possible to increase the LeaveTime on managed bridges
  - No way to change LeaveTime on unmanaged bridges
  - No way to discover the LeaveTime value of your link partner
  - Propagation time through the network becomes unreasonably long
  - To enable 4000 reservations
    - LeaveTime > 17 seconds
    - LeaveAllTime > 2 * LeaveTime
Possible Solutions

- **New LeaveAll Response mechanism**
  - Define a new attribute that confirms all attributes of a given type
    - A hash token should be included to verify data integrity
  - Define a new LeaveAll mode that requires attribute retransmission
    - To be used in the case of a hash token mismatch
  - **Pros:**
    - Unlimited number of attributes can be supported
    - SRP traffic is greatly reduced
  - **Cons:**
    - Possible race conditions between adding new attributes and calculating the hash token
Hash Token Operation

- Single packet is required to respond to LeaveAll
- No race to complete before 600ms timeout
- No need to extend the or be concerned with LeaveTime
- A hash token mismatch would trigger a full declaration of attributes

- Timeout for new LeaveAll may be different/longer than LeaveTime

- Could we have a dynamic timeout that is communicated in the request that is based on number of attributes?